REMARKS

No claims were added or cancelled. Accordingly, claims 1-34 remain pending in the present application.

Rejections Under 103(a)

Claims 1-9, 18-25, 28 and 33, are rejected under 35 U.S.C. 103(a) as being unpatentable over "The Sink Tree Paradigm: Connectionless Traffic Support on ATM LAN's" by Cohen et al. ("Cohen") in view of U.S. Patent No. 5,610,904 to Eng et al.

Applicants' invention relates to a method for a load balancing and routing within a multi-path network. The method routes packets by accessing and modifying tags for the packet when the packet arrives at a first node. The accessed tag is used to determine a second node to which the packet is routed. An updated tag is calculated and the accessed tag is then replaced by the updated tag which gives an updated packet. The updated packet is then routed from the first node to the second node.

Cohen is directed toward emulating or supporting connectionless traffic on a connected oriented network such as ATM. As such, Cohen uses gateways or connectionless servers to provide virtual channels and virtual paths. Data, in the form of ATM cells, rather than connectionless packets, must be routed through these switches or gateways, as shown in Figure 1 of Cohen. A single virtual channel connection consists of a link from source host to source switch, a virtual path from a source switch to destination switch, and a link from destination switch to destination host. There is no direct host to host transfer of data. Therefore, as given further meaning in dependent claims such as claim 2, a "node" in Applicants' invention may be a destination node, which Cohen refers to as a "host".

Thus, it is erroneous to equate "nodes" as discussed in Applicant's invention with "hosts and switches", which in Cohen, represent different types of entities. Switches in Cohen are merely intermediate "hops" over which cells are routed and do not represent final destinations. The Virtual Path connections in Cohen are maintained between switches, which neither originate nor serve as final destination, for data cells.

As set forth in the claims, Applicants' invention routs "packets" which are intended for connectionless networks. Cohen, on the other hand, relates to the routing of "cells". Claim 1 recites

"each packet having a routing in the network determined by a directed-graph index". From the accepted definition of these terms in the field of art, it is erroneous to equate "packets" with "cells".

It is also erroneous to equate the VCI and VPI fields with tags set forth in various embodiments of Applicant's invention. In fact, based on whether a data cell is transmitted in a UNI (user network interface) between switch and host on a NNI (Network node interface) between two switches, the VPI field is entirely different. By contrast, a "tag" contains the information needed to access the routing path over the entire network to the destination. In Cohen each switch maintains a table which defines the next output port and next VCI/VPI field.

Cohen utilizes a connection-oriented network to support connectionless data transfer. The "sink" referred to in Cohen is a destination switch, and can not be a host (final destination). Thus, as shown in Figure 2 of Cohen, destination switches s1, s3, and s4, which are part of the ATM permanent connections, are roots for their own respective sink trees. Switches s2, s6 etc. do not have sink trees and are not equivalent to switches s1, s3 and s4 in that they support no particular routing of their own. This is due to the connection-oriented nature of the network in Cohen and the lack of direct host-to-host communication.

The Office Action further explains that Cohen is silent as to the type of routing graph used and cites Eng for such a teaching. Eng is primarily directed toward packet-based networks and does not teach what kind of graph would be present in an ATM or cell-based network. Thus, Applicants submit that the directed acyclic graph of Eng should not be combined with Cohen absent this teaching. As applicant has discussed earlier, though Eng may teach what is meant by a directed acyclic graph, if Cohen and Eng could be combined, the combination of Eng and Cohen would still fail to yield Applicants' invention as claimed, since Cohen does not present art which is analogous to Applicants' invention.
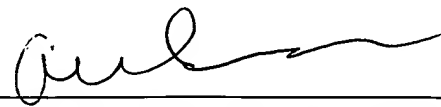
Applicants therefore submit that claim 1 is not rendered obvious by the combination of Cohen and Eng and request that this rejection be withdrawn. Since claims 2-9 depend on claim 1, Applicants submit that these claims are also not rendered obvious and request that their rejection be withdrawn. With respect to claim 18, which is an independent claim discussing flow entry and maintenance of a flow in the network using routing bias tables, neither Cohen nor Eng teach or suggest such flow control. Again, since Cohen deals with ATM cells, it does not discuss packet flows, which are the subject of claim 18. With respect to claims 18-25, 28 and 33, therefore, Applicants reiterate the remarks presented

with respect to claims 1-9, and submit that these claims are also not rendered obvious and request that their rejection be withdrawn.

Claims 10-17, 26-27, 29-32 and 34, are rejected under 35 U.S.C. 103(a) as being unpatentable over "The Sink Tree Paradigm: Connectionless Traffic Support on ATM LAN's" by Cohen et al. ("Cohen") in view of U.S. Patent No. 5,610,904 to Eng et al. ("Eng") and in further view of U.S. Patent No. 6,321,271 to Kodialam et al. ("Kodialam"). Applicants reiterate the arguments presented above with respect to Eng and Cohen. Kodialam is generally silent as to what constitutes an "administrative weight". However, since it is directed to finding the shortest path through the network, and doing so by use of a delay metric, it cannot be said to be randomized or load balanced. Load balancing, which Applicants' invention, in various embodiments, is directed towards a mechanism whereby network resources are utilized in a balanced manner so that no resource goes extensively unused in relation to other resources. Applicants therefore disagree with this characterization and state that since "administrative weights" are not defined, that Kodialam does not disclose or teach the subject matter of claims 10-17, 26-27, 29-32 and 34. Therefore, Applicants respectfully request that these rejections be withdrawn.

Applicants submit that all claims 1-34 are allowable over the cited art and solicit a notice to that effect.

Respectfully submitted,

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